Responding to the Aftermath of the Mount Saint Helens Eruption: Analysis and Communication of Uncertainty Through Scenario Planning

Part 1

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Scenario-Based Planning

- Uncertainty
- Sensitivity Analysis
- Dimensions
  - States of Nature
  - Decision Criteria
  - Complexity
  - Consequences
- Flexibility

Map of Planning Area

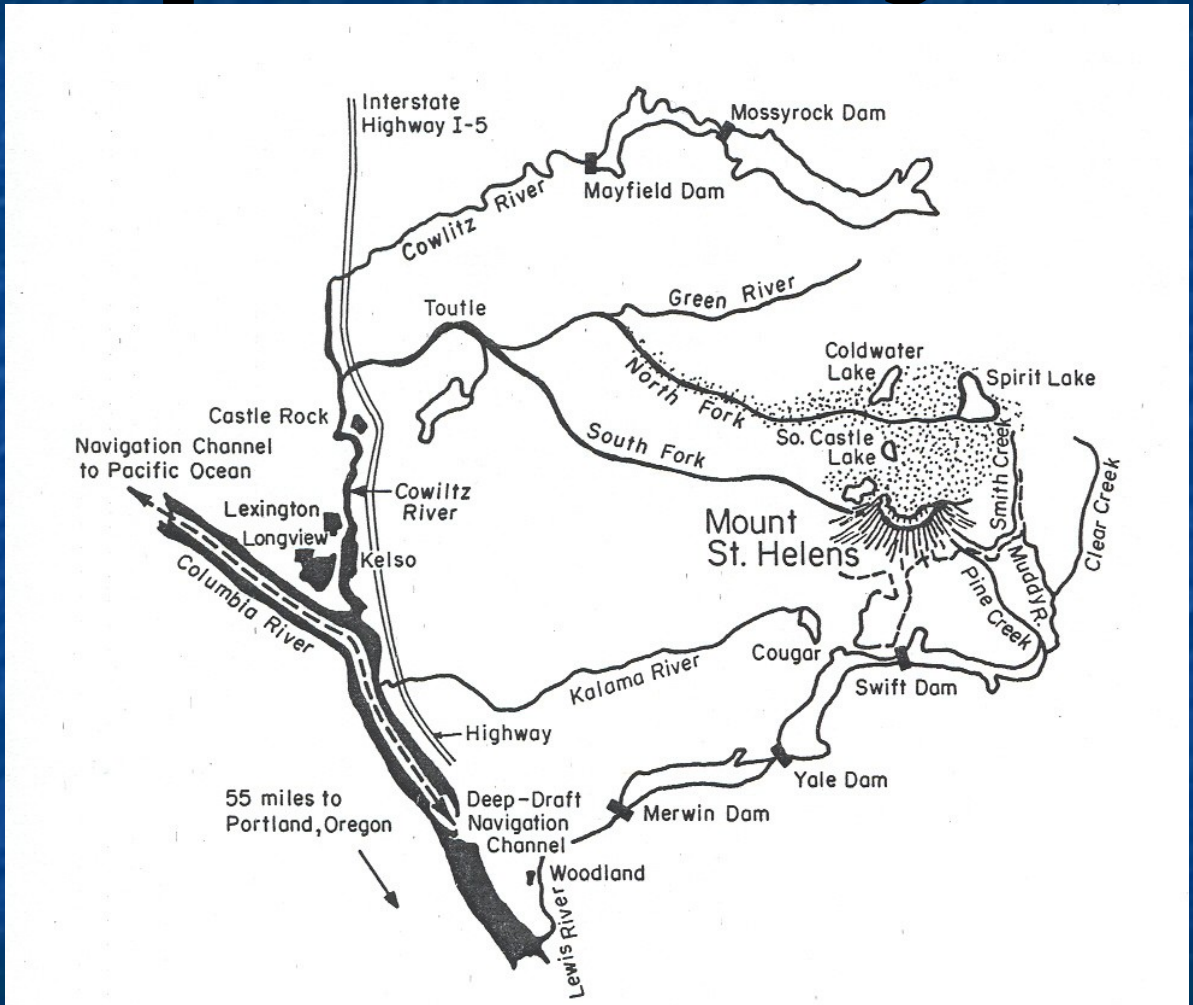

Figure 1. Map of Planning Area

Predicted Erosion from the Avalanche

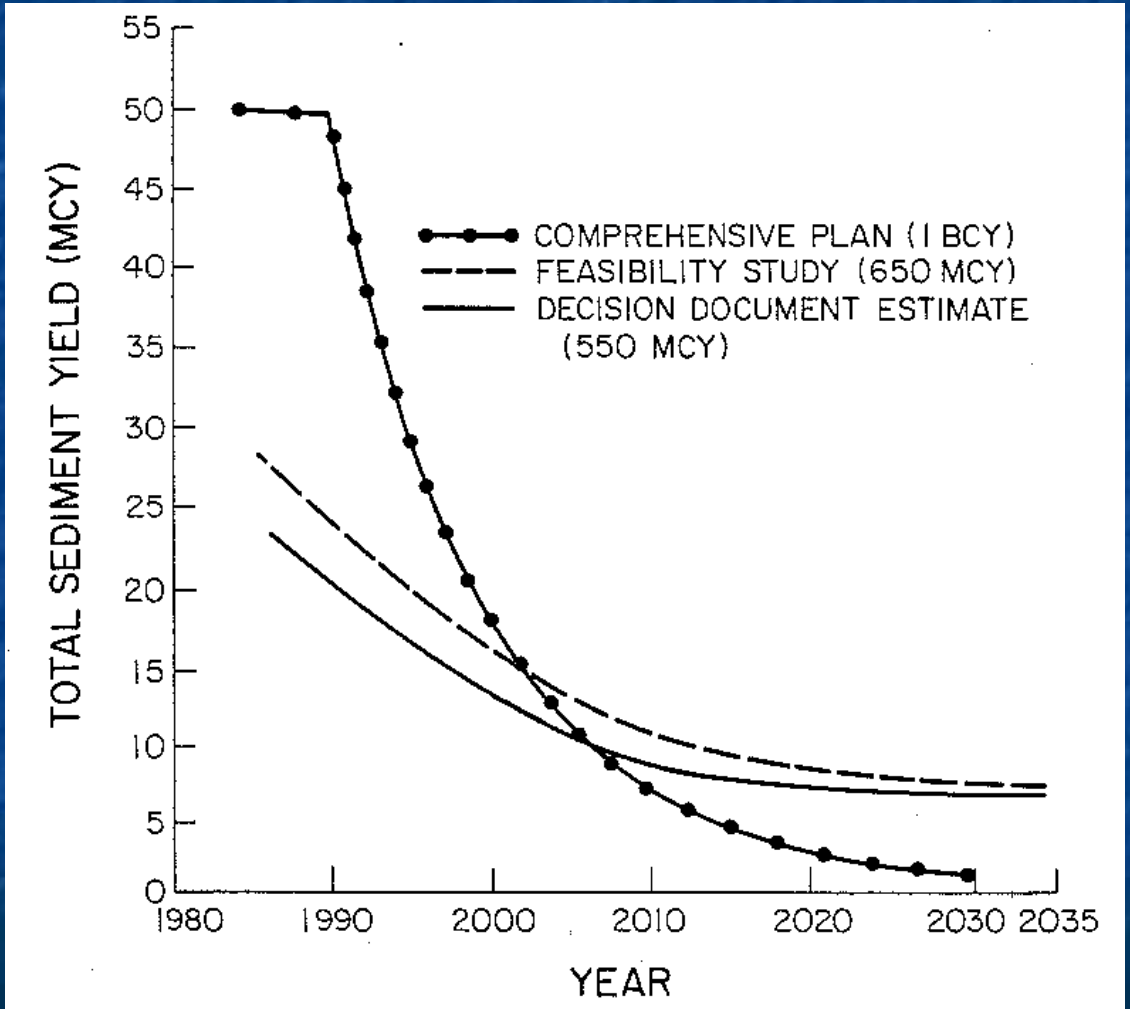

Figure 2. Predicted Erosion from the Avalanche

The Break-Even Analysis Chart

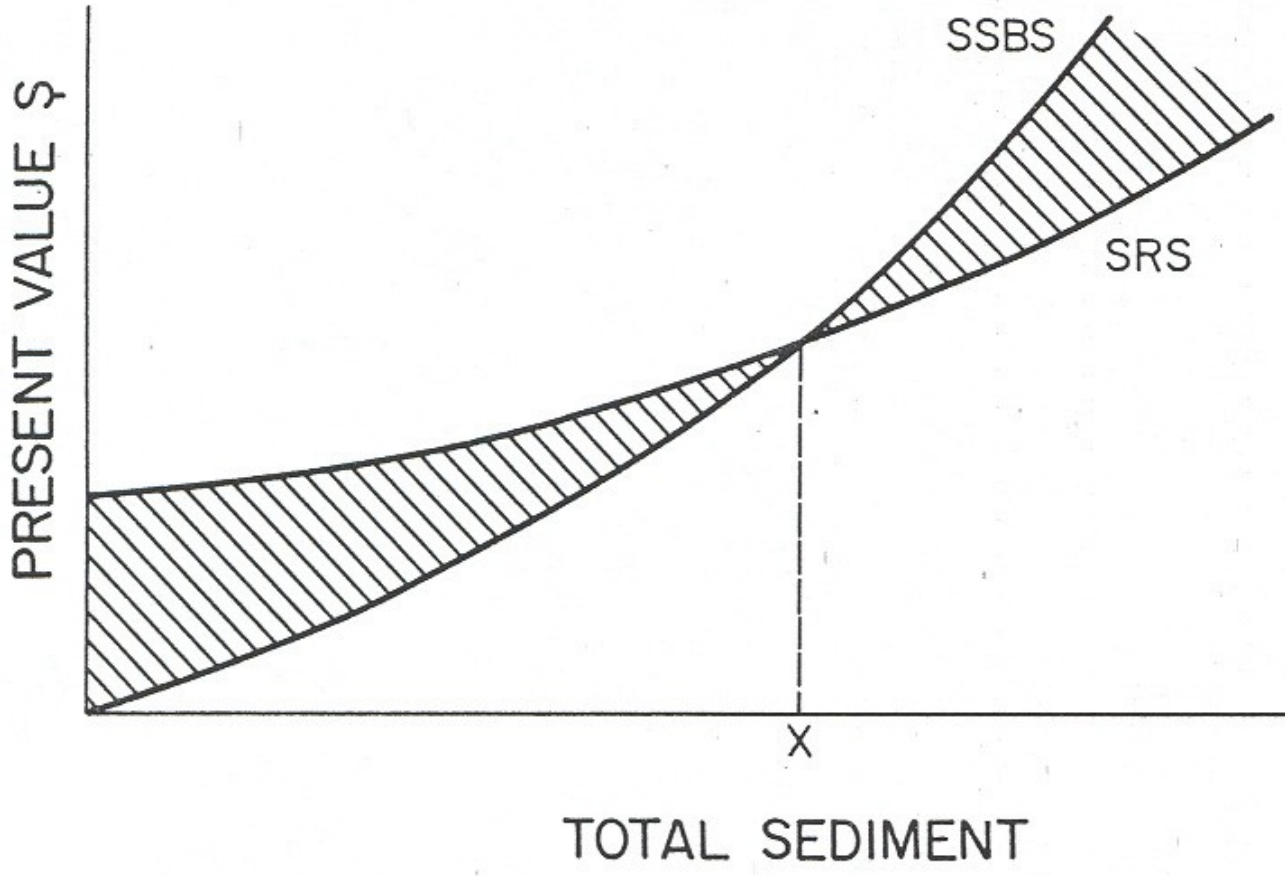

Figure 3. The Break-Even Analysis Chart

Premise Set Format

If DM believes: Sediment budget will be > 0.64 E	If DM believes: Sediment budget will be < 0.64 E
If DM wishes to: Assure certainty of SRS	If DM wishes to: Maintain flexibility to adjust program to sediment realized
If DM is willing to: Risk financial loss if sediment is < 0.64 E	If DM is willing to: Risk financial loss if sediment is > 0.64 E
Budget for large outlay in initial years.	Commit to long-term budgeting
	Risk temporarily reduced levels of protection for low-probability sequential stores
Then DM should: Select SRS	Then DM should: Delay decision on SRS and select SSBs

Source: Adapted from the U.S. Corps of Engineers (1985a).

Components of the Sediment Budget

Source	Sediment Yield	
	Volume in MCY	Percent of Total 550 MCY
Erosion from hydrologic events – Based upon computer modeling	190	35%
Mudflows from continual volcanic activity	250	45%
Incorporation of consultants' review – To account for model error.	110	20%

Source: Adapted from the U.S. Corps of Engineers (1985a).